

28°, 9th, 23d. Lower lake region, Rochester and Cleveland, 33°, 29th; Sandusky, 30°, 29th; Oswego, 28°, 29th. Upper lake region, Escanaba, 33°, 23d; Alpena and Port Huron, 32°, 23d; Duluth, 30° on 24th; Grand Haven, 20°, 27th. Upper Mississippi valley, Des Moines, 41°, 25th; Keokuk, 34°, 25th; La Crosse and St. Paul, 31°, 31st. Missouri valley, Yankton, 49°, 22d; Ft. Bennett, 50°, 31st; Omaha, 38°, 22d, 25th; Leavenworth, 35°, 14th. Extreme northwest, Ft. Buford, 49°, 7th; Bismarck, 50°, 27th; Moorhead, 42°, 24th. Northern slope, Cheyenne, 39°, 19th; North Platte, 42°, 24th; Ft. Keogh, 44°, 21st, 30th. Middle slope, Pike's Peak, 25°, 21st; Ft. Elliott, 42°, 2d; Dodge City, 46°, 22d; Denver, 39°, 24th. Southern slope, Concho and Ft. McKavett, 41°, 30th; Stockton, 46°, 5th; Ft. Griffin, 44°, 28th; Henrietta, 34°, 23th. Northern plateau, Umatilla, 38°, 31st; Eagle Rock, 39°, 22d; Ft. Missoula, 43°, 31st. Middle plateau, Winnemucca, 36°, 31st; Pioche, 32°, 31st; Salt Lake City, 30°, 31st. Southern plateau, Prescott, 50°, 22d; Phoenix, 47°, 21st; Tucson, 44°, 31st; La Mesilla, 50°, 2nd; Santa Fe, 32°, 21st; Silver City, 44°, 10th. North Pacific coast region, Olympia, 25°, 12th; Portland, 31°, 30th; Roseburg, 37°, 30th. Middle Pacific coast region, San Francisco, 21°, 27th; Sacramento, 26°, 31st; Red Bluff, 33°, 22nd. South Pacific coast region, San Diego, 30°, 23d; Campo, 50°, 23d; Yuma, 39°, 29th.

FROSTS.

In the various districts they were reported on the following dates: New England, 3d, 5th, 7th to 27th, 29th, 31st; Middle Atlantic states, 3d to 9th, 11th, 13th to 20th, 22d to 26th, 28th, 29th, 31st; South Atlantic states, 11th, 14th to 17th, 23d, 25th, 26th, 29th; East Gulf states, 11th, 14th, 22d, 23d, 29th; West Gulf states, 1st, 6th to 11th, 13th, 21st to 24th, 27th, 28th; Rio Grande valley, 9th, 10th; Ohio valley and Tennessee, 1st, 2d, 4th to 8th, 10th, 11th, 13th to 17th, 21st to 26th, 28th to 31st; lower lake region, 2d to 26th, 28th to 31st; upper lake region, 1st to 31st; extreme northwest, 1st to 31st, upper Mississippi valley, 1st, 2d, 3d, 5th to 15th, 19th to 25th, 27th to 31st; Missouri valley, 1st to 16th, 19th, 21st to 24th, 26th, 28th to 31st; northern slope, 1st to 13th, 15th to 26th, 29th; middle slope, 1st to 30th; southern slope, 7th to 10th; southern plateau, 1st to 31st; middle plateau, 1st to 24th, 26th, 27th, 31st; northern plateau, 1st to 7th, 9th to 12th, 16th to 21st; north Pacific coast region, 1st, 2d to 13th, 18th to 21st, 23d; middle Pacific coast region, 3d, 4th, 9th, 19th to 23d; south Pacific coast region, 1st, 4th to 8th, 10th, 15th, 17th, 18th, 20th to 23d. Frosts injurious to vegetation were reported as follows: Charlotte, N. C., 23d, peas entirely killed; peach buds and wheat injured. 25th, further injury to wheat and fruit by frost. Charleston, S. C., on 23d, light frost damaging strawberries and early vegetation. Sacramento on 20th, frost killing tender vegetation. Coleman City, Tex., 8th, all kinds of young plants and the buds of fruit trees were frost bitten. Henrietta, Tex., 9th, peach crop much injured by severe weather of past two days.

ICE.

Regarding its formation in the northern sections, this subject is considered elsewhere in THE REVIEW, under the head of "Ice in Rivers and Harbors." The following are exceptional cases of its formation in the southern sections of the country:

Augusta, Ga., 23d; Mason, Texas, 7th and 8th; Indianola, 9th, 10th; Fort Apache, Arizona, 6th; ice formed during night, an unusual occurrence for this season at this place; Red Bluff, 20th, formed during night on quiet water; Ashwood, Tenn., 11th, 14th, 23d, 25th; Austin, Tenn., 23d, 25th; Murfreesboro, Tenn., 14th, 23d, 25th; Coleman City, Texas, 7th.

LOW TEMPERATURES.

Ft. Stevenson, Dak., 20th, worst blizzard of whole winter; 21st, blizzard still raging; Eagle Rock, Idaho, 6th, coldest weather ever experienced here at this season; 7th, stock men complain of severe losses on account of severe cold weather.

Table of Maximum and Minimum Temperatures for March, 1882.

| State or Territory. | Signal Service. | | | U. S. Army Post Surgeons or Voluntary Observers. | | |
|---------------------------|---|------|-------|--|------|------|
| | Station. | Max. | Min. | Station. | Max. | Min. |
| Alabama..... | Montgomery..... | 9 | 42 | Auburn..... | 0 | 33 |
| Arizona..... | Yuma..... | 95 | | Maricopa..... | 101 | |
| Do..... | Prescott..... | | 13 | Mount Ida..... | 84 | 29 |
| Arkansas..... | Little Rock..... | 82 | 39 | Antioch..... | 98 | |
| California..... | Los Angeles..... | 89 | | Summit..... | | 4 |
| Do..... | San Francisco..... | 77 | 16 | Pagosa Springs..... | 50 | 8 |
| Colorado..... | West Los Angeles..... | 77 | 16 | Southington..... | | 11 |
| Do..... | Pike's Peak..... | 33 | -24.5 | Fort Randall..... | 85 | |
| Connecticut..... | New Haven..... | 59 | 13 | Pembina..... | | 24 |
| Do..... | New London..... | 59 | | Fort Barrancas..... | | 41 |
| Dakota..... | Yankton..... | 80 | | | | |
| Delaware..... | Ft. Stearnson..... | | 23 | | | |
| District of Columbia..... | Breakwater..... | 61 | 28 | | | |
| Florida..... | Washington..... | 71 | 23 | | | |
| Do..... | Jacksonville..... | 86 | | | | |
| Do..... | Cedar Keys, Jacksonville and Pensacola..... | | 47 | | | |
| Georgia..... | Augusta..... | 89 | | | | |
| Do..... | Atlanta..... | | 34 | | | |
| Idaho..... | Ft. Lapwai..... | 80 | | | | |
| Do..... | Eagle Rock..... | | -16 | | | |
| Illinois..... | Calro and Springfield..... | 73 | | Anna..... | 78 | |
| Do..... | Champaign..... | | 21 | Geneseo and Morrison..... | | 8 |
| Indiana..... | Indianapolis..... | 7 | 24 | Lacona..... | 78 | |
| Do..... | | | | Spice land..... | | 21 |
| Indian Territory..... | Fort Supply..... | 85 | 17 | | | |
| Do..... | Des Moines..... | 74 | 10 | | | |
| Do..... | Davenport..... | | 10 | Logan..... | 78 | 4 |
| Kansas..... | Dodge City..... | 81 | 14 | Manhattan and Wellington..... | | 12 |
| Do..... | | | | Bowling Green..... | 79 | 30 |
| Kentucky..... | Louisville..... | 75 | 31 | Orono..... | | -2.7 |
| Louisiana..... | Shreveport..... | 90 | 41 | | | |
| Maine..... | Portland..... | 54 | | Cumberland..... | 72 | |
| Do..... | Eastport..... | | 10 | Deer Park..... | | 13 |
| Maryland..... | Baltimore..... | 69 | 29 | Somerset..... | 63 | |
| Do..... | | | | South Lee..... | | 3 |
| Massachusetts..... | Boston..... | 61 | 13 | Fort Brady..... | | -12 |
| Do..... | Springfield..... | | 15 | | | |
| Michigan..... | Port Huron..... | 64 | | New Ulm..... | 61 | |
| Do..... | Alpena..... | | 0 | Fayette..... | 86 | 41 |
| Minnesota..... | St. Paul..... | 58 | | Protem..... | 86 | |
| Do..... | St. Vincent..... | | -25 | Corning..... | | 9 |
| Mississippi..... | Vicksburg..... | 84 | 43 | Ft. Shaw..... | | -19 |
| Missouri..... | Saint Louis..... | 79 | | | | |
| Do..... | Springfield..... | | 24 | | | |
| Montana..... | Forts Custer and Keogh..... | 76 | | | | |
| Do..... | Fort Shaw..... | | -18 | | | |
| Nebraska..... | Omaha..... | 77 | 5 | Lincoln..... | 89 | |
| Do..... | | | | Genot..... | | 3 |
| Nevada..... | Winnemucca..... | 72 | 3 | Humboldt..... | 82 | |
| Do..... | | | | Elko..... | | -7 |
| New Hampshire..... | Mt. Washington..... | 37 | -19.6 | Auburn..... | 58 | 10 |
| New Jersey..... | Atlantic City..... | 66 | | Freehold..... | | 16 |
| Do..... | Sandy Hook and Barnegat..... | | 20 | | | |
| New Mexico..... | La Mesilla..... | 87 | | Ft. Union..... | | -12 |
| Do..... | Santa Fe..... | | 9 | | | |
| New York..... | New York City..... | 67 | | Johnstown..... | | 2 |
| Do..... | Oswego..... | | 15 | Murphy..... | | 27 |
| North Carolina..... | Wilmington..... | 82 | | | | |
| Do..... | Charlotte..... | | 30 | Jacksonburg..... | 72 | |
| Ohio..... | Cincinnati..... | 70 | | Ruggles and New Athens..... | | 18 |
| Do..... | Cleveland, Columbus and Sandusky..... | | 22 | Dyberry..... | | 8 |
| Oregon..... | Umatilla..... | 77 | 26 | | | |
| Pennsylvania..... | Pittsburg..... | 75 | | Stateburg..... | 89 | 36 |
| Do..... | Erie..... | | 21 | | | |
| Rhode Island..... | Newport..... | 57 | 18 | | | |
| South Carolina..... | Charleston..... | 85 | 40 | | | |
| Tennessee..... | Knoxville..... | 83 | 29 | | | |
| Do..... | Chattanooga..... | 83 | | | | |
| Texas..... | Rio Grande..... | 96 | | | | |
| Do..... | Fort Elliott..... | | 18 | | | |
| Utah..... | Salt Lake City..... | 68 | 11 | Coalville..... | | 0 |
| Vermont..... | Burlington..... | 54 | 4 | Lunenburg..... | | -7 |
| Virginia..... | Cape Henry..... | 76 | | Snowville..... | 59 | 20 |
| Do..... | Fort Myer..... | | 22 | Wytheville..... | | 20 |
| Washington Ter..... | Dayton..... | 77 | | | | |
| Do..... | Spokane Falls..... | | 7 | | | |
| West Virginia..... | Morgantown..... | 72 | 22 | Helvetia..... | 76 | 20 |
| Wisconsin..... | Madison and Milwaukee..... | 62 | | Beloit..... | 67 | |
| Do..... | La Crosse..... | | 10 | Ashland..... | | -2 |
| Wyoming..... | Fort Washakie..... | 74 | -3 | Ft. Bridger..... | | -16 |

PRECIPITATION.

The distribution of rainfall over the United States and Canada for March, 1882, as determined from observations taken at over five hundred stations, is exhibited on chart iii. The table at the left hand corner of this chart shows the average monthly rainfall, determined from the records of the Signal Service stations in the several districts, and the excess or deficiency of rainfall as compared with the average for many years. Exam-

ination of the table shows that there has been a deficiency of rainfall along the Gulf coast, New England, the middle states, the Missouri valley, North Pacific coast region, and at the Rocky mountain stations. The greatest deficiency occurred on the North Pacific coast, where the monthly rainfall is more than 4.00 inches below the average. A slight excess of rainfall occurred in the lake region, Tennessee, the Ohio valley, Upper Mississippi valley, the extreme northwest, and the South Atlantic states. A slight excess of rainfall is also reported from California. At the station on Mount Washington an excess of 8.03 inches is reported, while the rainfall in the districts of New England averages about 1.00 inch below the mean for the month. It will be seen from the chart that the area of greatest rainfall extends over the Lower Mississippi, the Tennessee, Cumberland, and Lower Ohio valleys, where the rainfall for the month has ranged from 6.00 to 10.00 inches.

DEVIATIONS FROM AVERAGE PRECIPITATION.

Under this heading departures exhibited by the reports from the regular Signal Service stations are shown in the table of comparative monthly rainfalls, as published in the lower left-hand corner of chart iii. The following items of importance in connection with this subject are reported by voluntary observers:

Illinois: Riley, monthly precipitation 4.58 inches, has been exceeded but twice during past nineteen years, viz: in 1877 and 1881.

Indiana: Vevay, monthly precipitation 6.30 or 2.27 inches above the average of past seventeen years.

Iowa: Clinton, monthly precipitation slightly above the average.

Kansas: Lawrence, monthly precipitation 1.62 inches or 0.62 inch below the average of past fourteen years. The total precipitation for January, February, and March, 1882, is 3.98 inches or 0.79 inch below the average of the same months for the same period. Yates Centre, monthly precipitation 2.04 inches or 0.62 above the average of the past two years. Snow fell to a depth of $3\frac{3}{4}$ inches during the month which is above the average of past two years. Wellington, monthly rainfall 0.96 or 0.43 inch below the average of past three years.

Maine: Gardiner, monthly precipitation 5.04 or 1.11 inches above the average of past forty-six years. Snowfall for the past winter, 91 $\frac{1}{2}$ inches or slightly above the mean; the smallest winter snowfall, 30 $\frac{1}{2}$ inches occurred in 1837-8; the largest, 146 inches occurred in 1842-3. Days of sleighing during the past winter numbered 65; average for 46 years, 85; the least number 16 days occurred during the winters of 1839-40 and 1841-2; the largest number 136 days occurred during the winter of 1872-3.

Maryland: Fallston, monthly precipitation 3.28 or 1.30 inches below the average of past eleven years. During that period the largest monthly precipitation 6.40 and 7.53 inches occurred in 1871 and 1881, respectively; the smallest 1.70 inches occurred in 1874.

Massachusetts: Worcester, monthly precipitation 3.32 inches, which is 2.78 inches below that of 1881 and 0.20 inch below the average. The amount of snowfall during the month, 5 $\frac{1}{2}$ inches is 10 $\frac{3}{4}$ inches below that of March 1881, and is nearly 5 inches below the average.

Missouri: St. Louis, Missouri Weather Service reports, monthly precipitation 3.39 inches or 0.35 inch below average of past forty-five years. *New Hampshire*: Contoocookville, monthly snowfall 4 inches or about 11 inches below the average of past 12 years.

New York: North Volney, monthly precipitation 3.12 inches or 0.15 inch below the average of past nine years. During that period the largest monthly precipitation 6.97 inches occurred in 1873; smallest 2.00 inches occurred in 1879.

Virginia: Wytheville, monthly precipitation 3.16 inches or 0.14 inch below the average of past eighteen years.

West Virginia: Helvetia, monthly precipitation 6.65 or 1.85 inches above the average of the past six years.

SPECIAL HEAVY RAINS, INCLUDING MELTED SNOW.

1st, Paterson, N. J., 3.63 inches; Lenoir, N. C., 2.80; Ardenia, N. Y., 4.70; Fayetteville, Ark., 3.00; Hatteras, N. C., 3.71; Cedar Keys, Fla., 2.38 in 1 hour and 40 minutes; Kittyhawk, N. C., 3.75; Mt. Washington, 4.96. 2d, Eastport, Me., 3.18. 5th, Memphis, 3.78. 7th and 8th, Bowling Green, Ky., 2.50 in 16 hours. 8th, Vicksburg, 2.66. 12th, Forsyth, Ga., 2.38 in 12 hours. 19th, College Hill, Ohio, 4.00. 20th, Cincinnati, 2.54. 26th, Ames, Ia., 2.79; Mt. Vernon Barracks, Ala., 4.81, from 7:15 a. m. to 9:30 p. m.; Ft. Barrancas, Fla., 2.27 in 1 hour and 30 minutes; Auburn, Ala., 1.58 in 1 hour and 30 minutes. 26th and 27th, Quitman, Ga., 6.83, in 32 hours; Columbia, S. C., 3.59 in 26 hours; Montgomery, Ala., 3.80. 27th, Wilmington, N. C., 4.75, of which 3.31 fell in 8 hours; Augusta, Ga., 4.17, of which 2.70 fell in 8 hours. 27th and 28th, Smithville, N. C., 5.18 of which 2.12 fell in 8 hours; Fayetteville, N. C., 8.25, of which 6.00 fell from 11 a. m. to 10 p. m. 28th, Ft. Macon, N. C., 5.71.

LARGEST MONTHLY RAINFALLS, INCLUDING MELTED SNOW.

Cisco, Cal., 25.30 inches; Summit, Cal., 19.30; Alta, Cal., 15.40; Mt. Washington, 14.52; Fayetteville, N. C., 13.38; Truckee, Nev., 12.00; Forsyth, Ga., 10.46; Boca, Nev., 10.20; Bowling Green, Ky., 9.99; Hatteras, N. C., 9.67; Macon, N. C., and Nashville, 9.36; Auburn, Ala., 9.28; Memphis, 9.10; Austin, Tenn., 8.90; St. Meinrad, Ind., 8.51; Mt. Vernon Barracks, Ala., 8.41; Ashwood, Tenn., 8.15; Smithville, N. C., 7.81; Eastport, 7.54; College Hill, Ohio, 7.50; Vicksburg, 7.41; Auburn, N. H., 7.25; Morgantown, W. Va., 7.18; Green Springs, Ala., 7.15; Wilmington, N. C., 7.09; Halifax, N. S., 7.06; Ardenia, N. Y., 7.05; Chatham, N. B., 7.00; Colfax, Cal., 6.97; Montgomery, Ala., 6.82; Augusta, Ga., 6.80; Murfreesboro', Tenn., 6.77; New River, N. C., 6.67; Helvetia, W. Va., 6.65; Tennant, Cal., 6.57; Kitty Hawk, N. C., 6.49; Murphy, N. C., 6.40; Portsmouth, N. C., 6.35; Sydney, N. S., and Vevay, Ind., 6.30; Little Rock, 6.25; Cincinnati, 6.17; Auburn, Cal., 6.05.

SMALLEST MONTHLY RAINFALL, INCLUDING MELTED SNOW.

Benson, Casa Grande, Prescott, Texas Hill, Wilcox and Yuma, Ariz., Indio, Mammoth Tank and Mojave, Cal., and Ft. Wallace, Kan., none; Laredo, Tex., and Phoenix, Ariz., trace; Key West, Fla., and Ft. Verde, Ariz., 0.01; Ft. Davis, Tex., 0.03; Kelton, Utah, 0.05; Yankton, Dak., and Cheyenne, Wyo., 0.06; Rapid City, Dak., and Terry's Landing, Mont., 0.07; West Las Animas, Col., 0.10; Desoto, Neb., 0.13; Ft. Washakie, Wyo., and Punta Rasa, Fla., 0.15; Ft. Garland, Col., 0.16; Foley, Mont., and Ft. Collins, Col., 0.17; Denver, Col., and White Water, Cal., 0.20; Santa Fe, 0.23; Dodge City, 0.24; Ft. Stanton, N. M., 0.26; Brook Haven, N. Y., 0.28; Pioche, Nev., Corinne and Terrace, Utah, 0.30; Helena, Mont., 0.31; Umatilla, Or., 0.32; Ft. Meade, Dak., 0.33; Olivet, Dak., 0.34; Ft. Bridger, Wyo., 0.35; Lordsburg, N. M., and El Paso, Tex., 0.38; Ft. McKavett, Tex., 0.39; Tecoma, Nev., Ft. Wingate, N. M., and Lunenburg, Vt., 0.40; Ft. Keogh, Mont., and La Mesilla, N. M., 0.41; Ft. Sully, Dak., 0.42; Ft. McDermit, Nev., 0.44; Lincoln, Neb., and St. Augustine, Fla., 0.45; Deer Lodge, Mont., 0.47; Clay Centre, Kan., and Ft. Lewis, Col., 0.50.

RAINY DAYS.

The number varied in New England from 12 to 23; Middle Atlantic states, 12 to 19; South Atlantic states, 4 to 17; Florida peninsula, 2 to 6; east Gulf states, 7 to 14; West Gulf states, 11 to 15; Rio Grande valley, 6 to 11; Ohio valley and Tennessee, 13 to 20; lower lake region, 17 to 24; upper lake region, 18 to 25; extreme northwest, 13 to 19; Upper Mississippi valley, 9 to 18; Missouri valley, 5 to 15; northern slope, 2 to 18; middle slope, 2 to 10; southern slope, 4 to 10; southern plateau, 0 to 7; middle plateau, 6 to 11; northern plateau, 9 to 14; North Pacific coast region, 17 to 23; Middle Pacific coast region, 10 to 13; South Pacific coast region, 0 to 10.

CLOUDY DAYS.

The number varied in New England from 7 to 11; Middle Atlantic states, 5 to 14; South Atlantic states, 4 to 12; Florida peninsula, 1 to 3; East Gulf states, 5 to 8; West Gulf states, 5 to 15; Rio Grande valley, 9 to 16; Ohio valley and Tennessee, 6 to 15; lower lake region, 14 to 18; upper lake region, 11 to 18; extreme northwest, 8 to 13; Upper Mississippi valley, 8 to 17; Missouri valley, 6 to 11; northern slope, 1 to 12; middle slope, 2 to 5; southern slope, 2 to 8; southern plateau, 1 to 8; middle plateau, 2 to 8; Northern plateau, 7 to 13; North Pacific coast region, 14 to 15; Middle Pacific coast region, 6 to 19; South Pacific coast region, 1 to 11.

SNOW.

The dates on which snow fell in the various districts are as follows: New England, 1st to 7th, 9th to 14th, 16th to 27th, 29th, 30th, 31st; Middle Atlantic states, 3d, 7th, 9th to 19th, 21st to 26th; Ohio valley, 10th to 17th, 21st to 24th, 27th; lower lake region, 3d, 6th, 7th, 8th to 17th, 21st, 22d, 24th, 25th, 26th, 28th, 30th, 31st; upper lake region, 2d, 4th to 18th, 20th to 31st; extreme northwest, 1st to 6th, 9th, 13th to 21st, 23d to 29th; Upper Mississippi valley, 4th to 12th, 14th, 15th, 20th, 21st, 22d, 25th; Missouri valley, 4th to 12th, 14th, 15th, 18th, 19th, 20th, 21st, 23d, 24th, 26th, 28th, 29th; northern slope, 1st to 12th, 14th to 20th, 22d to 26th, 28th, 29th, 30th; middle slope, 3d to 10th, 18th, 20th, 26th, 27th; southern slope, 5th to 9th; southern plateau, 6th, 7th, 8th, 17th, 25th; middle plateau, 1st to 10th, 13th to 20th, 22d, 24th, 25th, 26th; northern plateau, 2d to 5th, 7th, 8th, 9th, 11th, 13th, 15th to 20th, 25th; North Pacific coast region, 2d, 3d, 4th, 8th, 14th, 17th, 18th, 19th.

Snow was also reported from the following stations not included in the districts named above: Cape Lookout, N. C., 8th; Weldon, N. C., 15th; Fort Gaston, Cal., 19th; San Geronio, Cal., 17th; Red Bluff, Cal., 10th.

Particularly heavy, or remarkable snow falls were reported as follows: Geneseo, Ill., 9th, furious snow storm, the snow attaining the depth of eight inches; Muscatine, Ia., 9th, one of the severest snow storms ever experienced; Burlington, Ia., 9th, heaviest snow storm of season; depth ten inches on level; all telegraph wires between this city and Chicago were grounded; no communication East, except *via* St. Paul; Ft. Sully, Dakota, 5th, 6th, very heavy snow storm; travel over wagon roads suspended; trains delayed: Huron, Dakota, 20th, very severe snow storm, accompanied by wind, attaining a velocity of sixty-six miles. Snow fell in blinding sheets, making it impossible to see objects twenty feet distant; at 9 a. m., the wind shifted to nw., and increased from eight to forty-four miles in less than fifteen minutes, and afterwards, increased steadily until 3 p. m., when the maximum velocity was reached; 21st, the storm continued with unabated fury until after sunset, occasioning great inconvenience and suffering to immigrants camping on the prairies. A number of cattle perished from exhaustion and cold. Pike's Peak, Colorado, 26th, the most terrific snow storm of the season began at 11.15 a. m., and continued all day. The instrument shelter, store-room and stable were filled with snow to a depth of two feet. The snow penetrated the openings in the roof and ceiling, completely covering the desk, bed and office floor; 27th, snow drifted about station to depths of from ten to twelve feet.

LARGEST MONTHLY SNOW FALL.

Cisco, Cal., 251 inches; Summit, Cal., 193; Truckee, Nev., 120.5; Boca, Nev., 102; Alta, Cal., 86; Mt. Washington, about 66; Carson City, Nev., 50.4; Colfax, Cal., 44; Eagle Rock, Idaho, 34.5; Duluth, Minn., 27.2; Pike's Peak, Col., and Wells, Nev., 26.5; Alpena, Mich., Milwaukee, Wis., and Reno, Nev., 25; Moorhead, Minn., 24.6; Grand Haven, Mich., about 24.5; St. Paul, Minn., 23.8; Battle Mountain, Nev., 21; Port Huron, 20.9; Winnemucca, Nev., 20; Eastport, Me., and Escanaba, Mich., 18; Northport, Mich., 17.3; Beowawe, Nev., 16.5; Pal-

asade, Nev., 16; Blackfoot Agency, Mont., 15.2; Orono, Me., and Newport, Vt., 15; Embarrass, Wis., 14.8; Otega, Nev., 14.1; Lunenburg, Vt., and Golconda, Nev., 13.5; Ft. Assinaboine, Mont., 13.2; Franklin, Wis., and St. Vincent, Minn., 13; Rockford, Ill., 12.8; Erie, Pa., 12.2; Ashland, Wis., Dexter, Me., and Elko, Nev., 12; New Shoreham, R. I., 11.9; Rowe, Mass., 11.5; Riley, Ill., 11.3; Wadsworth, Nev., 11; Muscatine, Ia., Niles, Mich., and Burlington, Vt., 10.5; Ft. Benton, Mont., Carlin, Nev., and Rochester, 10; Lansing, Mich., Minneapolis, Minn., and Browns, Nev., 9.5; Clinton, Ia., 9.3; Keokuk, 9.2; Lawrence and Holton, Kan., Stafford, Vt., New Ulm, Minn., and Salt Lake City, 9; Corning, Mo., Davenport, Ia., 8.4; Dyberry, Pa., Auburn, N. H., Geneseo, Ill., Buffalo and Friendship, N. Y., 8.

DEPTH OF SNOW ON GROUND AT END OF MONTH.

Colorado: Pike's Peak, 12 inches
Dakota: Fort Stevenson, 1 inch.
Maine: Gardiner, 15 inches; Orono, 2 inches; Portland, trace.
Minnesota: St. Vincent, 13 inches; Moorhead, 6 inches.
New Hampshire: Mt. Washington, 41 inches; Auburn, 1 to 2 inches.
New York: Waterburg, traces in sheltered places; Friendship and Ithaca, trace.
Pennsylvania: Dyberry, patches in protected places.
Vermont: Burlington, trace.
Wisconsin: trace.

RAIN OR SNOW FROM A CLOUDLESS SKY.

Baltimore, 22d, 7.15 to 7.25 p. m., light snow from an apparently cloudless sky. Woodstock, Maryland, 15th, 9.30 p. m., rain from a perfectly cloudless sky.

HAIL.

Lynchburg, Va., 8th, 4.50 p. m., light shower of hail. Charlotte, N. C., 28th, 5.20 p. m., small hail-stones size of peas. A heavy hail storm which did a good deal of damage to wheat, is reported to have occurred at the same time north of the city. Jacksonville, Fla., 1st, small hail. Denison, Tex., 8th, 6.15 p. m., small hail lasting one minute. Little Rock, Ark., 15th, 1.55 p. m., small hail began falling and was soon followed by a heavy hail-storm; stones measured three-fourths of an inch in diameter and were almost perfectly spherical in form; storm ended at 2.05 p. m.; hail also fell on 27th and 31st. Mason, Tex., 26th, scattering hail of large size fell during thunder-storm. Nashville, Tenn., 17th, 6.37 to 6.40 p. m., hail of considerable size. Cincinnati, Ohio, 27th, 2.30 p. m., hail size of peas, lasting two minutes; 27th, a few large hail-stones fell between 1.20 and 2.10 p. m. Duluth, Minn., 4th, a heavy fall of hail is reported to have occurred at New London, four miles south of station. Keokuk, Ia., 7th, 8 to 8.10 p. m., hail-stones three-eighths of an inch in diameter. Omaha, 26th, 1.15 p. m., copious shower of hail, size of peas, lasting three minutes. Springfield, Mo., 12th, 11.30 a. m. to 12.10 p. m.; 15th, 12.10 to 12.45 p. m. Huron Dak., 4th, hail-stones size of hazel-nuts. Colfax, Wash. Ty., 3d, heavy hail-storm from 4 to 4.15 p. m. Sacramento, Cal., 17th, 18th, small hail. Roseburg, Or., 2d, 15th, 18th, small hail. Portland, Or., 9th, 4.57 p. m., brisk shower of hail lasting 10 minutes. Point San Jose, Cal., 12th, 4 p. m. Alexandria, Dak., 4th; Forsyth, Ga., 27th, slight fall of hail. Vevay, Ind., 18th, 1 to 2 p. m., hail lasting 5 minutes; stones measuring from one-fourth to one-half inch in diameter. 27th, noon, severest hail-storm ever witnessed in this locality; at 12.07 p. m., stones one-fourth inch in diameter began falling; they rapidly increased in size varying from one to one and three-fourth inches in diameter. The largest weighing 12 pwts. troy, and were corrugated and lozenge shaped. Many windows were broken and much damage was done to shrubbery and to wheat fields. The duration of the storm was four minutes. Charleston, Ill., 17th, from 11.40 to 11.42 a. m., and from 2.23 to 2.24 p. m., hail stones the size of common bullets. Swanwick, Ill., 20th. Morrison, Ill., 25th. Ft. Wayne, Ind., 7th. In-

dependence, Ia., 17th, 6 to 8 a. m., severe hail storm. Cresco, Ia., 4th, 17th. Guttenburg, Ia., 4th, 25th. Nora Springs, Ia., 4th, 25th. Cedar Rapids, Ia., 4th, 12th, 25th. Holton, Kan., 26th. Yates Centre, Kan., 8th. Gardiner, Me., 10th, 30th. Falston, Md., 21st. Deer Park, Md., 15th. Fall River, Mass., 3d. Kalamazoo, Mich., 4th. Niles, Mich., 5th. Northport, Mich., 2d, 5.30, p. m., hail storm lasting five minutes, nearly covering the ground with stones as large as buck-shot. New Ulm, Minn., 16th. Corning, Mo., 26th, an excessive rain and hail storm visited the section of country about 20 miles north of this place. It is reported by the Atchison county papers that hail in some places drifted to depths of three and one half feet. Only the edge of the storm passed over this place. Protem, Mo., 31st, 3 a. m., heavy hail seven miles southeast of station, doing much injury to fruit trees and gardens. Lincoln, Neb., 26th. Freehold, N. J., 28th. Princeton, N. J., 9th. Fayetteville, N. C., 1st. Bellefontaine, O., 26th. Bethel, College Hill, Westerville and Wooster, Ohio, 27th. Jacksonburg, Ohio, 14th, 18th, 27th. New Athens, Ohio, 27th, 2.30 p. m., hail storm passed over station in an easterly direction. Twenty miles east of Wheeling, W. Va., considerable damage was done to windows. Dybury, Pa., 8th, 21st. Wellsboro, Pa., 9th, 18th. Meadville, Pa., 27th. Stateburg, S. C., 1st. Austin, Tenn., 17th, 28th. Murfreesboro, Tenn., 17th, 26th. Clarksville, Texas, 5th, 8th. Wytheville, Va., 15th. Franklin, Wis., 4th, 17th. Ft. Myer, Va., 8th. Castroville, Texas, 22d. Louisville, 27th. Logansport, Ind., 17th. Indianapolis, 15th. Milwaukee, 25th. Alpena, Mich., 15th. Burlington, Iowa, 7th, 8.15 p. m., hail as large as peas, lasting one minute. Des Moines, 14th, 17th. St. Paul, 4th, 20th. Madison, Wis., 4th. Davenport, Iowa, 17th. Fort Missoula, Mont., 16th, 17th. Deadwood, Dak., 26th. Fort Assinnaboine, Mont., 1st. Griffin, Tex., 6th, 8th. Ft. Cummings, N. M., 25th, 26th. San Carlos, Ariz., 26th. Tucson, Ariz., 25th, 26th. Silver City, N. M., 7th. Winnemucca, Nev., 15th. Dayton, Wash. Ty., 17th. Umatilla, Or., 18th. Colfax, Wash. Ty., 3d, 17th, 19th. San Francisco, 15th, 16th, 19th. Des Moines, Ia., 14th, hail lasting fourteen minutes. Murfreesboro, Tenn., 17th, a severe hail storm passed over Rutherford and Cannon counties about 7 a. m. The course of the storm was a little south of east. In some places in Rutherford county, hail fell to a depth of eight inches and the stones were unusually large.

SLEET.

The dates on which sleet fell in the various districts are as follows: New England, 1st, 4th, 5th, 6th, 10th, 11th, 18th, 19th, 21st, 26th, 27th; Middle Atlantic states, 8th, 9th, 15th, 17th, 18th, 19th, 21st, 22d, 27th; Ohio valley, 4th, 10th; upper lake region, 2d, 4th to 9th, 14th, 17th, 18th, 20th, 21st, 26th; Upper Mississippi valley, 8th, 9th, 10th, 13th, 14th, 20th, 23d, 25th; Missouri valley, 8th, 9th, 12th; southern slope, 5th to 9th; northern slope, 25th, 26th; middle plateau, 6th, 15th, 21st. Sleet was also reported from the following stations not included in the districts named above: Ft. Porter, N. Y., 21st; Ft. Stevenson, Dak., 14th; Ft. Supply, Ind. Ty., 7th; Umatilla, 18th. Unusually severe storms have been reported as follows: Coleman City, Tex., during sleet storm on 7th, 8th, ice on telegraph lines accumulated to the thickness of two inches; several iron poles were bent over by the weight and many trees broken. Graham, Tex., 5th to 8th, prostrating telegraph wire. Henrietta, Tex., 7th, ice on telegraph line one and a quarter inches thick; much damage done.

RELATIVE HUMIDITY.

The mean relative humidity for the month ranges as follows in the several districts:

New England, from 64 to 79; Middle Atlantic states, 58 to 79; South Atlantic states, 61 to 79; Florida peninsula, 69 to 72; East Gulf states, 66 to 78; West Gulf states, 57 to 83; Rio Grande valley, 71 to 84; Ohio valley and Tennessee, 60 to 71; lower lake region, 69 to 78; upper lake region, 73 to 80; extreme northwest, 69 to 90; Upper Mississippi valley, 62 to 75; Mis-

souri valley, 60 to 72; northern slope, 54 to 69; middle slope, 40 to 56; southern slope, 41 to 74; southern plateau, 36 to 51; middle plateau, 50 to 65; northern plateau, 60 to 79; North Pacific coast region, 74 to 78; Middle Pacific coast region, 62 to 79; South Pacific coast region, 37 to 72. High stations report the following percentages not corrected for altitude: Cheyenne, Wyo., 41.9; Pike's Peak, 81.0; Santa Fe, 37.3; Mt. Washington, 84.6.

WINDS.

The prevailing winds during the month of March at Signal Service stations are shown on chart ii. by arrows flying with the wind. On the New England and Middle Atlantic coasts and over lakes Ontario, Huron and Michigan the winds are northwesterly; in the South Atlantic states, southwesterly; in the Gulf states, Tennessee, Indian territory and northern Texas, southerly; in the Upper Mississippi and Lower Missouri valleys, northwesterly; in the plateau regions, variable, but mostly from south to west; in California, westerly to northwesterly; North Pacific coast region, southerly.

TOTAL MOVEMENTS OF THE AIR.

The following are the largest total movements at Signal Service stations: Mount Washington, 26,488 miles; Pike's Peak, 19,552; Delaware Breakwater, 14,345; New Shoreham, R. I., 13,887; Portsmouth, N. C., 13,686; Hatteras, N. C., 13,356; Kittyhawk, N. C., 12,840; Sandy Hook, 12,741; Champaign, Ill., 12,433; Sandusky, 12,314; Cape May, N. J., 11,807; Indianola, Tex., 11,616; Barnegat, N. J., 11,532; Huron, Dak., 11,300; Cape Henry, Va., 10,953; Milwaukee, 10,641; Macon, N. C., 10,447; Cheyenne, Wyo., 10,339; Moorhead, Minn., 10,215; Grand Haven, Mich., 10,182; Provincetown, Mass., 10,062; Dodge City, Kan., 10,031; St. Vincent, Minn., 10,009; Omaha, 10,002; Rochester, 9,938; Fort Shaw, Mont., 9,857; Fort Elliott, Tex., 9,839; Eastport, 9,794; North Platte, 9,495; Boston, 9,425; Fort Myer, Va., 9,258; Davenport, 8,960; Erie and St. Louis, 8,950; Alpena, Mich., 8,908; Bismarck, Dak., 8,887; Newport, R. I., 8,875; Buffalo, 8,811; Detroit, 8,800; Cleveland, 8,776; Fort Assinnaboine, Mont., 8,768; Galveston, 8,668; Springfield, Mo., 8,618; Eagle Rock, Idaho, 8,609; Fort Benton, Mont., 8,429; Columbus, O., 8,250; Port Eads, La., 8,248; Atlantic City, N. J., 8,190; New York city, 8,176; Springfield, Ill., 8,157; Louisville, 8,128; Smithville, N. C., 8,093; Oswego, 8,052; Toledo, 8,019; Fort Buford, Dak., 8,008; Umatilla, Or., 8,002. The smallest are: Roseburg, Or., 2,279; Uvalde, Tex., 2,732; La Mesilla, N. M., 2,757; Phoenix, Ariz., 2,848.

HIGH WINDS.

On the summit of Mount Washington, the maximum velocity, 118 miles, n.w., occurred on the 24th. Velocities of 75 miles per hour, or over, occurred as follows: 114 miles, s., 1st; 91, n.w., 4th; 100, s.w., 9th; 108, n.w., 20th; 90, n.w., 21st; 118, n.w., 24th; 75 n.w., 25th; 93, s.w., 27th; 92, s.w., 28th; 90, n.w., 31st. On all other dates during the month, velocities reached or exceeded 50 miles per hour, with the exception of 5th, 12th, 15th, 16th, 17th, 22d. On the summit of Pike's Peak, Col., the maximum velocity 92 miles, n., occurred on 20th. Other high velocities occurred as follows: 60, n.w., 1st; 60, s.w., 3d; 58, s.w., 4th; 58, s.w., 10th; 56, s.w., 11th; 58, s.w., 16th; 60, s.w., 17th; 50, s.w., 19th; 78, n., 21st; 62, s.w., 25th; 62, n.w., 28th; 66, n.w., 29th. Other stations reporting velocities of 50 miles per hour, or over, are as follows: Umatilla, Or., 52, w., 28th; Ft. Assinnaboine, Mont., 56, w., 28th; Ft. Benton, Mont., 50, w., 1st; Ft. Shaw, Mont., 51, s.w., 27th and 57, s.w., 28th; Helena, Mont., 56, s.w., 28th; Ft. Custer, Mont., 64, w., 28th; Ft. Keogh, Mont., 50, w., 28th; Cheyenne, Wyo., 52, n.w., 28th; Ft. Washakie, Wyo., 60, w., 28th; Huron, Dak., 50, n.w., 5th and 66, n.w., 20th; Palestine, Tex., 60, s., 18th; Indianola, Tex., 53, n., 21st; Rochester, N. Y., 50, n., 21st; Columbus, Ohio, 54, w., 21st; Champaign, Ill., 50, s.w., 9th; Del. Breakwater, Del., 52, s.e., 1st; Cape Henry, Va., 52, n.w., 13th; Kittyhawk, N. C., 50, n., 24th.